

இலங்கை உயிரியல் ஒலிம்பிக் - 2013



அறிவுறுத்தல்கள் :

, t; t; pdhj j hs; **A, B** Mfja , uz ;L gFj rfi sf; nfhz ;LssJ.

- **பகுதி A** , y; 40 gyNj uT t; pdhf; fs> nk hj j g; Gssr; fs; 40.
- **பகுதி B** , y; 20 FWTpi l t; pdhf; fs> nk hj j g; Gssr; fs; 60.

vyyh t; pdhf; fs fFk; tpi l vOJ f

Neuk; : 2 kz rj j pahyk;

பகுதி A - பகுதி B வினாக்கள்

1. fy t; l; j j pd; G2 mtji j ay;

- (1) mi kgnghj j epw%uj j qfs; kj j pa Nfhl by; epi uahf , UfFk;
- (2) mi kgnghj j epw%uj j qfs; mtwWf; Fupa Ki d fS fF fj ru; cgfu z qfs; %yk; <uf; fgg l bUfFk;
- (3) mi kgnghj j epw%uj j qfs; , d; Dk; gfugG (gpd; Gwkbj y) mi l a t; pyi y.
- (4) mi kgnghj j epw%uj j qfs; j wNghJ xUkba epi y myyJ n epi ya; py; , UfFk;
- (5) kdij c l wfyj j py; 92 FNuhkwwpd; E}y; fi sf; fhz yhk;

2. xsrj nj hFgG gwwpa rupahd \$wi wj ; nj upTnra; f.

- (1) xsrj nj hFj p II (Photo system II) , y; khj j uk; xsrj nj hFgG nghRNghup Nywwk; ei l ngWk;
- (2) xsrj nj hFggpy; Rahj l xl r; ri dj; Nj hwWt; pggj wF xsrj j hf; fj j pi dj; nj hl q; fi t; ggj py; xs; pa; pd; Mukgg; gq; fs; p; gG mj j paht r; pak hFk;
- (3) j ht uf; fyj j py; ATP r; peNj R r; ff; fy; fs; i j yfNfha; pl; nk d; r; t; t; py; khj j uk; , l kngWk;
- (4) t; l; t; Lf; fhd xsp nghRNghupNywwj j pwF xsrj nj hFj p II Nj i t ahFk;
- (5) xsrj ; j hoj j Yf; F e; l; pd; xsrj nj hFgG Nj i t ahFk;

3. t_{py}qFf; fyqfs_{py}; fynkdrT; T nj hl ughfr; rupahd \$wi wj; nj upTnraf.
 - (1) fynkdrT; t_{pd}; clgFj pi a Nehf; fp euehl; i Kss thyfs; j pi rggLj; j ggLk;
 - (2) nkdrT; t_{py}ss nfhOggk_{py}qfs; , uli l g; gpi z gGfi sfi; nfhz bUgg j_{py} y.
 - (3) nghRNghy_{pggpi} Lfs; xU Ki w cUthf; fggli; hy; mi t fynkdrT; t_{py}; epi yahfj; j qf; papUf; Fk;
 - (4) Guj qfs; , Ugi l apDsNs vOkhwhfg; guk_gpapUf; Fk;
 - (5) nghRNghy_{pggpi} Lfs; fpi sfs; mwwi t.

4. NADP, NAD, ATP, Ji z nehj pak; A vdgd
 - (1) g_{ppk}qbd; ti sak; xdi wf; nfhz li t.
 - (2) %dW ti saf; fl; i kgG xdi wf; nfhz li t.
 - (3) ADP i af; nfhz li t.
 - (4) bxl rpi uNgh] ; l fi; nfhz li t.
 - (5) %nghRNgw; \$l; ik; xdi wf; nfhz li t.

5. %fhnghl r_{py}rf; mk_{py} (TCA) t l i j j pd; mDNrgj j pwFupa gqfs; gGj; nj hl ughfj; ~~suphah~~ g_{pd}; tUt dtwWs; vJ?
 - (1) fhwWr; Rthrj j_{py}; fhNghi tj NuwW xl r_{pnaww}ji j g; Guj j p nraAk;
 - (2) r_{py} mk_{pn}dh mk_{py}qfs; pd; cap_{aw}; nj hfGgf; fhd mDNrg KdNdhbfi s toqFk;
 - (3) Rthrr; r_qf_{py}rf; F NADH , i d toqFk;
 - (4) Nrj dr; Nrui tfs_{py}UeJ CO₂ i t nts_{pt}plk;
 - (5) ATP i aj; Nj hwWt_{pf}; Fk;

6. Fojatd; \$l; i l cUthf; Fk; ehu; ti ffs;
 - (1) u_{gp}A; y_{pd}> y_{pf}d_{pd}> mf_{up}d; vdr; rupahfg; ngaupl ggLk;
 - (2) Ez GdFohafs> kNahr_{pd}> Ez ; , i ofs; vdr; rupahfg; ngaupl ggLk;
 - (3) nfuww_{pd}> kNahr_{pd}> mf_{up}d; vdr; rupahfg; ngaupl ggLk;
 - (4) Ez ; , i ofs> , i lapi ofs> Ez GdFohafs; vdr; rupahfg; ngaupl ggLk;
 - (5) mf_{up}d> kNahr_{pd}> , i lapi ofs; vdr; rupahfg; ngaupl ggLk;

7. kdij f; FUj p_{py}; B- epz elr; Fojaqfs; gpwngHUnsj p_{py}fi s cUthf; FtJl d; Ruf; Fk; mj d; Kj YUt_{pd}; vf; fl; i kgGfs; k_{pf} edF t_{py}Uj j p ai lej pUf; Fk?
 - (1) mOj j khd mfKj YUr; r_{pw}ti y khj j puk;
 - (2) mOj j khd mfKj YUr; r_{pw}ti yAk; nfhy; fp cgfuz qfS k; khj j puk;
 - (3) mOj j kww mfKj YUr; r_{pw}ti yAk; , i yNrhNrhkfs k; khj j puk;
 - (4) mOj j kww mfKj YUr; r_{pw}ti yAk; nfhy; fp cgfuz qfS k; khj j puk;
 - (5) mOj j kww mfKj YUr; r_{pw}ti y> nfhy; fp cgfuz qfs> , i yNrh Nrhkfs;

13. GfFk; j htuf; spd; fyr; Rt upy; gpd;t Ut d t wWs; vJ fhz ggLf pd wJ?

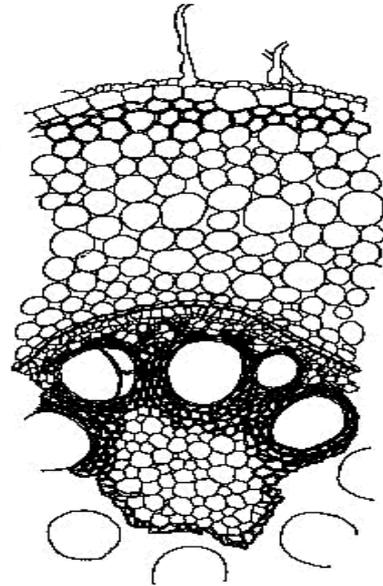
- I: mgNghg[sh] ; IV: Ez Gd; Fohafs; VII: , ypf; pd; II: Ez ; , i ofs; V: nfuw wpd; VIII: Guj k; III: Ez r pWehufs; VI: i f w wpd; IX: Rg upd;

- (1) I, III, VII, IX (2) II, V, VII, VIII (3) III, IV, V, VIII
(4) II, VI, IX (5) I, III, V, VI

14. j htuf; fl i i kgnghd wpd; FwF; Fnt l ; LK fj i j cU fh l ; Lf w J. , f; fl i i kgGl d; nj hl uGi l a r upahd cU t t pay> c l yi kgg pay> nj hFj p a pay> #oypay; , ayGfi sj; nj upf.

- I: j z ; L II: Nt u; III: , i yf; fhkG IV: , Ut j j pi yap V: xU t j j pi yap VI: ml uNrW myyJ elj j htuk; VII: epj j j wFupa j htuk;

- (1) I, IV, VI
(2) II, V, VI
(3) II, V, VII
(4) II, IV, VII
(5) III, IV, VII



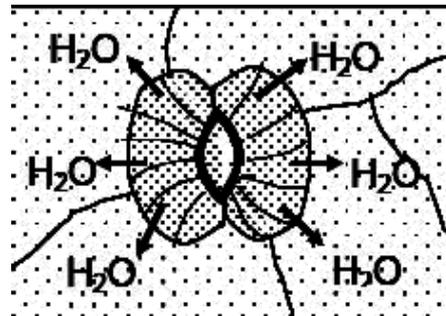
15. xLf;fw; gpupT ei l ngWt J

- (1) *Mucor* , d; t j j p fs; cU thffj j py;
(2) *Nephrolepis* , d; Ef k; gpupi fai l i fa py;
(3) *Oryza* , d; Mz ; fUt pd; cU thffj j py;
(4) *Oryza* , d; Ki sag; i g cU thffj j py;
(5) *Pogonaturm* , y; Mz ; Gz upf; spd; cU thffj j py;

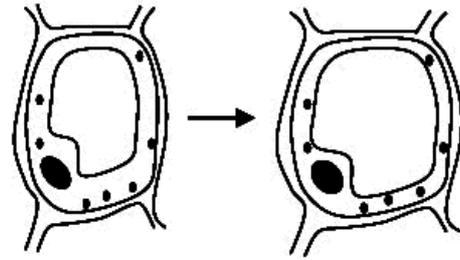
16. , i ythapd; %Li fi a t upgg l k; vLj ; J ffhl ; Lf w J. Gss p fs; K⁺ mad fi sr; Rl bf; fh l ; Lf w J.

, t t upgg l ti u j y py; c ss g pi oi aj; nj upT nraf.

- (1) elu> fyj j pDs; mi r j y;
(2) fht w fyj j pd; nt spr Rt u; j bgghf , Uj j y;
(3) fyqf; spd; elz l mrRfF rkhej ukhf Ez r pWehufs; mi kej pUj j y;
(4) fyj j pd; nt spr Na K⁺ nrw pT caut hf , Uj j y;
(5) Ji z fi; fyqf; s; , Uj j y;



17. "A" vdq; ngaupl ggl;l fi urypDs;
mkpoj j pa gpd; j htuf; fyj j pd;
c Utt pay; fbf; fh;l ggl;LssJ.
fyk; kwWk; fi ury; nj hl ughd
rupahd \$wi wj; nj upTnraf.



- (1) fi ury; A , d; el; mOj j k;
fyj j pYk; ghuffff; Fi wthFk;
- (2) fi ury; A elhf , Uff KbahJ
- (3) fi ury; A , d; mK fff mOj j k; fyj j pYk; ghuffff; Fi wthFk;
- (4) fyj j pd; mK fff mOj j k; fi urypDs; mkpoj j pa gpd; Fi wti l fpwJ.
- (5) fyj j pd; el; mOj j k; fi ua mOj j j j pWFr; rkdhFk;

18. Pogonatum cld; xggpLKNghJ epyj j pWFupa tho;fi ffF Selaginella rpwgghf
i rthffki lej pUffpwJ. , j wfhd kpr; rupahd tpsffk; ahJ?

- (1) Selaginella edF tUj j pai lej fho; , i oaj j f; nfhz ;LssJ.
- (2) Selaginella gypd t j j pAz i ki af; fh;l;LfpwJ.
- (3) Selaginella tpy; MI rAss t j j j ; j htuk; cz ;L> mt;thwpUff Pogonatum
, y; MI rAss Gz upj ; j htuk; cz ;L.
- (4) Pogonatum , d; fUff;l;Yff Gwel; Nji tahFk;
- (5) cyu; epi yapd; fb; Selaginella t j j pfs; tsp %yk; gutyi l Ak;

19. jhtuqfs;pd; Nghri z j; Nji tfs; nj hl ughd gpd;tUk; \$wWFS s;
~~rupahd~~ vJ?

- (1) $H_2PO_4^-$ vd;Dk; tbt py; nghRguR mfj ;J wpOrggLfpwJ.
- (2) fej fk; KffpakhdJ. Vnddpy; , J Ji z nehjak; A , d; %yff;\$W MFk;
- (3) i ej urd; gj j j ypy; nkhygbdk; Kffpakhdj hFk;
- (4) , i ytha; j pwj j ypy; nghwwhrpak; Kffpakhdj hFk;
- (5) kqfd] > ehfk; Nghdw Rt;l; %yfqfi s jhtuqfs; nfhz bUff
Ntz baj pyi y.

20. jhtuj; j fi fg; gi l nj hl ughd gpd;tUk; tpt upgGfS s; rupahdJ vJ?

- A- t j j %bAs pfs;pdJ k; t j j %ba py pfs;pdJ k; j z ;Lfs pYk; Nt ufs pYk;
, J fhz ggLk;
- B- , J fydkhwpi oaj j pdhy; cUthffggLk;
- C- j z ;Lfs pYk; Nt ufs pYk; Kj yhd kwWk; Ji z cupaj j pwF nts pNa
, J mi kej pUffFk;
- D- j fi ff; fyqfs; khgnghUs; Nrkgi gf; nfhz ;Lssd.
- E- Kj purpai lej j fi ff; fyqfs; , wej fyqfs; MFk;

rupahd \$wWfs; ;

- (1) A, C, E. (2) A, B, C, E. (3) A, C, D, E.
- (4) D, E. (5) A, C.

21. egu; xUtUF;F t;g; nj hdwpy; , l J gff Kd; newwpa; fLi kahd mb Vwgl;hy; gpd;tUk; nrawghLfs;py; vJ fLi kahfg; ghj pffgg; bUf;ff; \$Lk?

- (1) rkepi y (2) NgrR (3) ghui t (4) Nf; i y; (5) Qhgfk;

22. , t;t;pdh gpd;tUk; t;mwkpd;fi s mbggi l ahaf; nfhz ;l J.

- P - t;mwkpd; K Q - Nghy;pf; mkpyk; R - t;mwkpd; E
S - gNahw;pd; T - i j akpd;

kdj; f; Fl;ypYss xdWfnfhdWJi z ahe; j di kAss gww;paht;pdhy; Nj hwWt; pffgg;LtJ NkwFwj j t;mwkpd;fS s; vJ?

- (1) P, Q khj j ;uk; (2) P, T khj j ;uk; (3) P, Q, S khj j ;uk;
(4) Q, R, S khj j ;uk; (5) R, T khj j ;uk;

- **23 ஆம் 24 ஆம் வினாக்கள்** kdj; DfFj; Nj i tggLk; gpd;tUk; %yf;q;f; s;pd; \$l; q;fi s mbggi l ahff; nfhz ;l d.

- A - Mg, Cu, Cl, Zn B - Ca, P, Na, Fe C - Fe, N, S, Se
D - Cr, Zn, Mn, I E - F, Ca, Na, S;

23. kdj; DfFj; Nj i tggLk; Rt;l;L %yf;q;f; s; khj j ;uk; nfhz ;l J NkwFwj j \$l; q;fS s; vJ?

- (1) A (2) B (3) C (4) D (5) E

24. neh;pa VtYffFj; Nj i tahd %yf;q;f; s; khj j ;uk; nfhz ;l J NkwFwj j \$l; q;fS s; vJ?

- (1) A (2) B (3) C (4) D (5) E

- **25 ஆம் 26 ஆம் வினாக்கள்** fNo j ugg;l;Lss l e;J kb;pd;q;f; s;pd; cz i t mbggi l ahff; nfhz ;l i t.

இனங்கள்	உணவு
A	t;pyq;F g;shej d;
B	j htug; g;shej d;
C	Moej elj; j htug;f;s;
D	kb;f;s;
E	f;pu] Numpahf;s;

25. NkwFwj j , dq;f;s;py; vej , dk; Mff; \$ba Fl; y; e; s / c l y; e; s t;pf; j j i j ci l aJ?

- (1) A , dq;f;s; (2) B , dq;f;s; (3) C , dq;f;s;
(4) D , dq;f;s; (5) E , dq;f;s;

30. gpi wNahd; (prion) vdwWhy; vdd?
- (1) xU Guj k;
 - (2) Guj Ti w mww nj hwWj yi l ej RNA.
 - (3) Primer RNA , wfhd gbj j fL (template) Mfg; gz pGupAk; DNA nj hl up.
 - (4) , i okz paww Mukg Af;fupNahw;
 - (5) nry j ht u Nehafspid; nj hwWk; fUtp
31. gqfR nj hl ughd rupahd \$wi wj; nj upTnraf.
- (1) vyyhg; gqfRfS k; epyj j pw;Fupa mqf;pfshFk;
 - (2) gqfRf;fs; mi raj j ff tjj j pfi sf; nfhz bUggj pyi y.
 - (3) fUrNruFi fapd; gpd;du> cl dbahf xLqfw; gupT ei lngWk;
 - (4) m] Nfhi kfNfhwwh gqfRf;fs;pd; , yiqf kwWk; , yiqfky; tjj j pfs> tjj j pff; yj j pDs; cUthFk;
 - (5) grpbNahi kfNfhwwh gqfRf;fs> mtwwpd; thofi f tllk; KOtJk; fpi s nfhz ;l> , UfUf;\$l;L epi yAss gupRtUss Grz tpi ofi s cilait.
32. Fbj nj hi f xdwpy; kpf cauthd ghukgupa khwi yf; fh;LtJ gpd;tUtd twWs; vJ?
- (1) rp] upf; i gGNuhrp] ; (cystic fibrosis)
 - (2) gytpuYi li k
 - (3) fj puhspapd; epwk;
 - (4) mupthS Uf; fy FUj prNrhi f
 - (5) nts;py;
33. DNA , d; gpdGwkbj ypy; (gfuggpy) gpd;tUk; eprfo;Tfs; , l kngWf;pdwd.
- A- epugGf;pdw %yqfS fF , i lapYss gpi z gGfs; cilAk;
- B- epugGf;pdw %yqfS fF , i lapy; gpi z gGfs; cUthFk;
- C- DNA %yf;\$W / KwfftpOk;
- D- vj pu; gl bi ffs; gupAk;
- E- ntyy - nghRNgw; gpi z gGfs; cUthFk;
- F- xtnthU gl bi fapYk; epugGf;pdw epAf;f;sp;Nahi ul;LFS l d; Rahj l d epAf;f;sp;Nahi ul;Lfs; tupi rapyi kAk;
- , eepfo;Tfs; vdd xOqfpy; ei lngWk?
- (1) A, C, F, D, B, E
 - (2) C, A, D, F, B, E
 - (3) C, F, A, D, E, B
 - (4) D, C, A, F, E, B
 - (5) D, F, C, A, B, E

34. rpy mkpNdh mkpyqfS k; mtwWf;F xjj mRNA %y Kki kfS k; (triplets)
fNo gl bawgLj j ggl;Lssd.

gltGatn gldGatn	mRNA %y Kki kfS k;
gll dymydd;	UUU
i yrb;	AAG
Mu[pi dd;	CGA
mydjd;	GCA

mydjd; - Mu[pi dd; - i yrb; - gll dymydd; nghyngnggi ul;
nj hl upi aj; Nj hwWt;ggj wFj; Nj i tahd DNA nj hl up vJ?

- (1) CGT GCT TTC AAA
- (2) CGT GCT TTC TTT
- (3) CGU GCU UUC AAA
- (4) CGU GCU UUC TTT
- (5) GCT CGT TTC AAA

35. kdj ri j apf; fyj j pd; mRNA %yf;\$wwpyUeJ , dRypd; gukgi uayF
gpyj nj Lf;fggLfdwJ. gpwgGupi kapw; nghwpaay; nj hopyEl gj j pd; %yk;
kdj , dRypd; cwgj j pad; l eJ epi yfs; j uggL;Lssd.

- A- g[sh] kpl; DNA restriction nehj paqfS l d; nt l l ggLfdwJ.
- B- k[; uhd;] f;pygNu] ; l g; gadgLj j p DNA gpyj p nraaggLfdwJ.
- C- fyqf;syUeJ mRNA ngauj nj Lf;fggLfdwJ.
- D- y[Nf] ; nehj paj i j g; gadgLj j p g[sh] kpl; DNA MdJ toqfp DNA
 , wF , i z f;fggLfdwJ.
- E- gwwUpahf; fyj ;J s; k[; r; Nruj y; g[sh] kpl; GFj j ggLfdwJ.

gpd;t Uk; nj hl ufS s; vJ rupahdJ?

- (1) A → C → B → E → D
- (2) A → C → D → B → E
- (3) B → A → C → E → D
- (4) C → B → A → D → E
- (5) C → A → B → D → E

36. gpd;t Ut d t wWs; gi l naLggww (noninvasive) Gwehl ;L;Fupa , dk; vJ?

- (1) *Chitala ornata*
- (2) *Ophicephalus striatus*
- (3) *Caryota urens*
- (4) *Camelia sinensis*
- (5) *Parthenium hysterophorus*

- 37 ~~புதி~~ 38 ~~புதி வினாக்கள்~~ gpd;tUk; thAffi s mbggi l ahff; nfhz ;i t.

- A- fhgdhuhl i ri ;L
- B- kNj d;
- C- fej ft huhl i ri ;L
- D- FNshNuhGNshNuhfhgd,fs;
- E- i ej urd; xli ri ;Lfs;
- F- fhgNdhnuhl i ri ;L

37. gri r tli ;L tpi s TfF \$bastiy;gqfsgGr;nrat;J NkwFwpggpl ggl i t wWs; vi t?

- (1) A, B
- (2) A, C
- (3) A, B, C
- (4) A, B, C, F
- (5) A, C, D, E

38. mkpy ki ofs; \$basT gqfsgGr; nrat;J NkwFwj j t wWs; vi t?

- (1) A, B, D
- (2) B, C, D
- (3) C, D, E
- (4) C, E
- (5) D, F

39. , t;tdh gpd;tUk; #ownwhFj pfi s mbggi l aha;f; nfhz ;J.

- A- ghi yeyqfs;
- B- ki yrhuej fhLfs;
- C- fz ;lyfs;
- D- cyu; fygGf; fhLfs;
- E- KI; fhLfs;

ri j ggpbgghd , i yfS l dhd j ht uqfs; , Uj j y; NkwFwj j vr#oy; nj hFj pi a NtWgpupj ;J mwaj j ff rpwggpayghFk?

- (1) A, B, E
- (2) A, B, C
- (3) A, C, D
- (4) A, C, E
- (5) A, D, E

40. t;trhar; nrawghLfs;d; #oY fFupa j hf;fk; ~~அப்பொழுது~~ gpd;tUt d t wWs; vJ?

- (1) kz ; mupgG
- (2) kz ; cggj y;
- (3) thopl qfi s , oj j y;
- (4) mkpy ki ofs;
- (5) cyfshtpa ntggkhj y;

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பகுதி B - குறுவிடை வினாக்கள்

- தரப்பட்ட வெற்றிடத்தில் விடை எழுதுக.
- தவறுசெய்து தரப்பட்ட எழுத்துக்கள், இலக்கங்கள் அல்லது அடைவானங்களை மாத்திரம் பவன்படுத்துக.

1. fyk; xdW> Fwjj Guj j i j cwgjj p nra;t J l d; Ruf;fjpdwJ . vqfs; j wNghi j a mwTf:F Vwg , rnrad;Ki wfs l d; nj hl uGgl;l mf;fll;i kgGfi s khj j p k; gl bayryUe;J nj upTnraf. (nrad;Ki wfs;pd; rupahd xOq;fry; , yffqfi sg; gl bayrLf.)

- | | |
|--------------------------------|------------------|
| 1. ngnuhfr;Nrhk; | 2. , i uNghNrhk; |
| 3. nfhy;fj cgfuz k; | 4. RugG Gl fk; |
| 5. Kj Y U nkdr;t | 6. Gdntwwpl k; |
| 7. mOjj kww mfKj YUr; r;Wt i y | 8. , i yNrhNrhk; |
| 9. nfhz ;Lnryyy; Gl fk; | |

fl;l;i kgGfs;pd; rupahd xOq;F :

2. xLf;fwgpprt;pd; Nkd;K ft tj; j I, , i oAUggpprt;pd; Nkd;K ft tj; j nj hl ughf rupahdJ g;pd;tUK; \$wWFS s; vJ? mt;j; j fS f;F vj puhfj; j ugg;l;l ntwpp;l;j;j;ry; fNoAss gl bayryUe;J rupahd , yffqfi s vOJf. epw%uj;j qfs;pd; cg myFfs; mi uepwTUffs; vdgi j f; ft dj j p; nfhs.f.

1. epw%uj;j qfs; Ki dTfS f;F mi rfpdwd.
2. j d;ahd mi uepwTUffs; Ki dTfS f;F mi rfpdwd.
3. mi rAk; epw%uj;j qfs; , uz ;L mi uepwTUffi sf; nfhz ;Lssd.
4. gukgi uayF xdw;pd; , uz ;L vj pUuf;fi s epw%uj;j qfs; fhTk;
5. epw%uj;j qfs;pd; xU xUkbaj; nj hfj p xt;nthU Ki dfFk; mi rAk;
6. xt;nthU fyj j p;Fk; ehd;F fj pu; Ki dfs; cz ;L.

1. xLf;fwgpprt;pd; Nkd;K ft tj; j I
2. , i oAUg; pprt;pd; Nkd;K ft tj; j

3. t; yqF xdw Kdj ssgLfdw njhz i li aAk; , uz ;L flGssifi sAk; ci laJ. gdtUk; , ayGfi s , t; t; yqF nfhz bUggd; "✓" vdw mi lahsj; i jAk; , t; t; yqF nfhz buht; bd; "x" vdw mi lahsj; i jAk; FwggpLf.

Jz ;Lgl y;	
Jz ;LJz ;lhj y;	
j i yahFnray;	
<uyyqfj; j di k	
Gwf; fUf;fl ; y;	
Fl kgp epi yfs;	

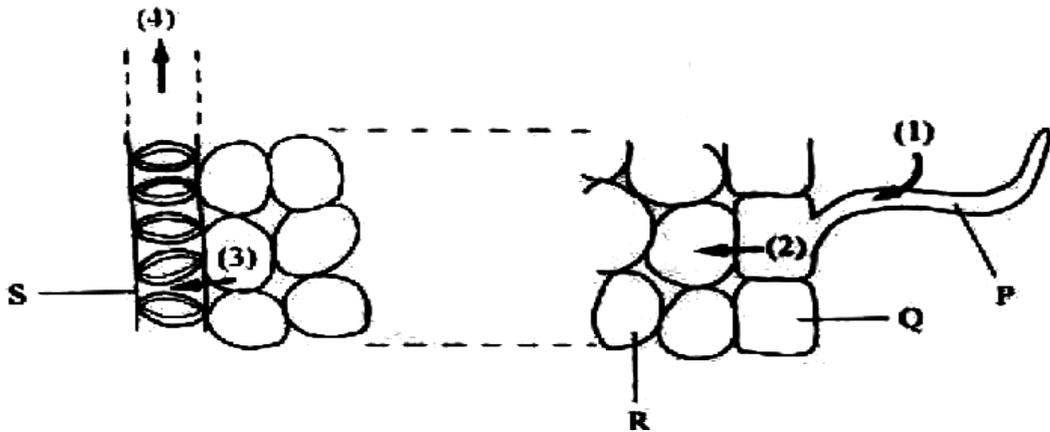
4. mqfjj ;pd; / fyjj ;pd; cUthf;fj ;py; njhl uGgl ; fyggpT ti fi aAk; fyqfs;pd; kba epi yi aAk; (ploidy) FwggpLf. , i oAUggpT wF I > xLf;fw; gpTf;F II vDk; mi lahsj; i jg; gadgLj ;Jf.

முடிவம் / சேவம்	செய்தியின் விவரம்	செய்தியின் மதிப்பீடு
t ;j ;J %bAs;pf;sd; t ;j ;j ft pi oak;		
kfuej kz p		
t ;j ;J %bAs;pd; Kl i l		
ghr;pd; t ;j ;j p		
, i oKj y;		
ghr;pd; t ;j ;j		
gd;d Gz ujj ; j htuk;		
gd;d j j ;pd; t ;j ;j p		
gd;d j j ;pd; Kl i l		

5. jhtu tsurr;g; gjhuj ;qfi s mtw;pd; njhoy;fS l d; , i z f;Ff. rupahd tpi li a "✓" vdTk; gpi oahd tpi li a "x" vdTk; Fwj ;Jf; fh ;Lf.

செய்தியின்	செய்தியின்	ABA	செய்தியின்
1. gfftUkG tsurr;pi a C fF t ;j ;j y;			
2. , i ytha; %Li fi a C fF t ;j ;j y;			
3. gok; fd ;j i y C fF t ;j ;j y;			
4. crr;pah; r; p			
5. taj ;hj y; j hkj ki l j y;			
6. t ;j ;J cwq;F epi yi a Mukgp ;j y;			
7. fyt ;pi t C fF t ;j ;j y;			

- 6 Mk;7 Mk; tpdhf;fs;Nt upypUeJ , i yfS fF gj huj j qf;spd;nfhz ;Lnryyi y vLj ;J f;fhl ;Lk; gpd;t Uk; t upggl j i j mbggi lahff; nfhz ;l i t.



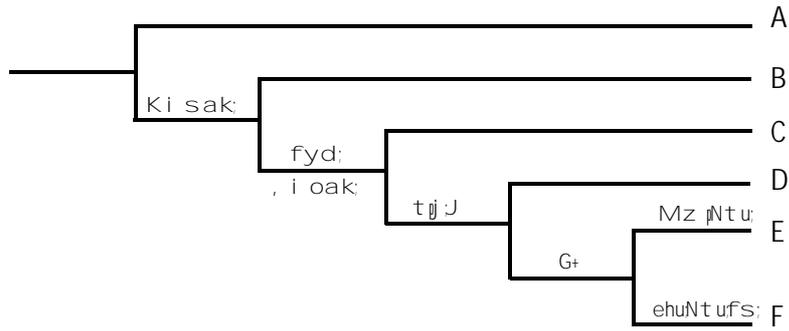
6. nghUj j khd nfhz ;Lnryyy; ghi j i a / nradKi wi aj; nj upTnraJ rup vd;pd; "✓" vdTk; gpi o vd;pd; "x" mi lahsh; j j Ak; gpd;t Uk; ml ;l ti z apy; FwpggpLf.

, ayG	1	2	3	4
capugghd nfhz ;Lnryyy;				
gpurhuz k;				
rpkgjsh] ;l; ghi j				

7. P,Q,R,S vdg;twppi l Na gpd;t Uk; , ayGfi s f;nfhz ;l fyqfi sj ;nj upTnraf. rupahd tpi l fi s "✓" mi lahsk; %yk; FwpggpLf.

	P	Q	R	S
cauthd el;Oj j k;				
Fi wthd mK f;f mOj j k;				
j bj j fyrRtu				
cz Tr; NrkpgG				

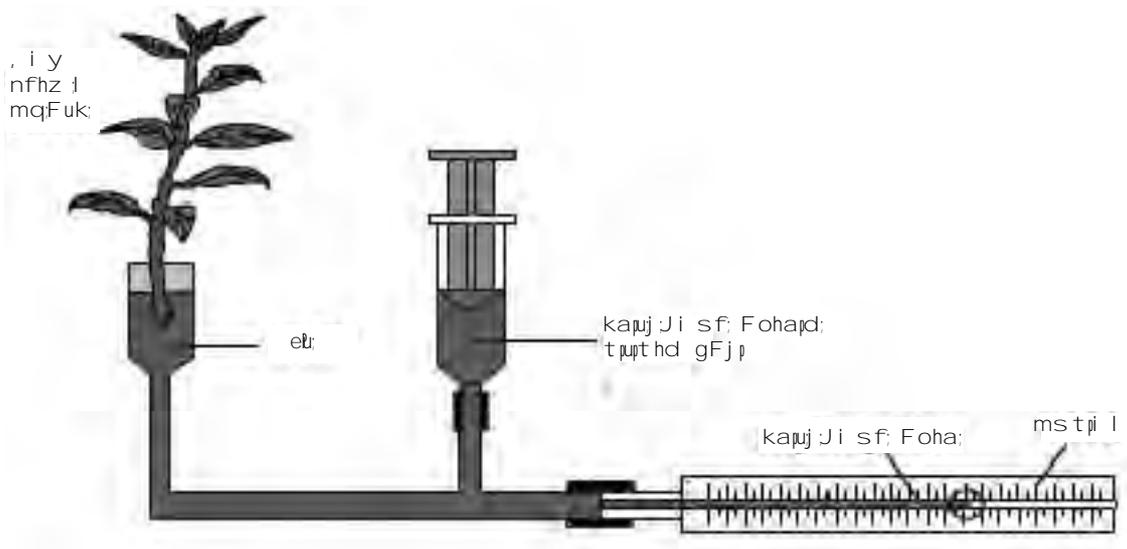
8. jhtu thofi f tli j j y; \$uggpd; gupj hd epfo;Tfs; , t;tuggl j j y; vLj J f; fhli ggl Lssd.



vej j frd; (taxon) , y; B - F ti uAss gpd; tUk; , ayGfs; , Uffpdwd. rupahd tpi li a / tpi lfi sr; "✓" vdTk; gpi oahd tpi li a / tpi lfi sg; "x" vdTk; FwpggpLf.

Qandq	B	C	D	E	F
<upyyKss tj j j; jhtuk;					
Rahj bk; Fi wej Gz upj; jhtuk;					
Rahj bk; Fi wej tj j j; jhtuk;					
fUf; fi j Y f; f el; Nj i tahFk;					
elz j J }uq; fS fF , dq; fs; gukgyi la KbAk;					
mi rtw w tpe; J fs;					
fhNghd; ngu] ; fhli by; fhz ggLk;					

9. el; NknyLjji y (uptake) mstplTj d; %yk; ntli ggl; l mqfUj j pd; Mt pAapugi g mstplTj wF cw pQrdkhdpi ag; gadgLj j KbAk;



gpd;t UK; \$wWfs; rupahpd; "✓" vdTk; gpi oahpd; "x" vdTk; FwpgpLf.

A	cwpQrdkhd; toi kahf elpd; fNo nghUjj ggLfWJ	
B	fhwWf; Fkppfs; Nj hdWkNghJ cgfuz jjwF ntspNa el u mfj;J wpQRtj wF el; epukgja GFjjp gadgLfWJ.	
C	mq;Fuk; jhtujj pyUeJ ntl;ggli;Tld; ntl;ggli; gFj p t] yb; , lggli;L %lggli; Ntz ;Lk;	
D	mq;Fuj; j f; fUi kahd gsh] upf; i gapdhy; ci wapyLj y; MtpAapugi gf; Fi wf;Fk;	
E	mi rtww> <uygGss tsapy; MtpAapugG t] k; cauthf , Uf;Fk;	
F	ntggkhd> cyuej mi rAk; tsapy; MtpAapugG t] k; kpf cauthf , Uf;Fk;	
G	el; NknyLjj y; t] Kk; MtpAapugG t] Kk; vgnghOJk; rkkhf , Uggj pyi y.	
H	el; %yf;\$Wfs f;F , i la pyhd Fi wthd gpi z T , ayGfs; cwpQrdkhd; gupNrhj i dary; gurrpi di a cUthf;Fk;	
I	cwpQrdkhd; gupNrhj i dard; NgWfs; mstw; u] pahdj hf , Uggj pyi y.	

10. tpyqFfs; i Na fhz ggLk; foitqf fl; i kgGfs; fNo j uggli;Lssd. Aupf;
mkpyj; j f; foithff; foif;Fk; tpyqFfs; mi t , Uggd; "✓" mi lahs
j; j Ak; Aupf; mkpyj; j f; foithff; foif;Fk; tpyqFfs; ~~2013~~ "x"
mi lahs; j; j Ak; , Lf.

kyghpad; r; wFohafs;	
foelufqfs;	
gRQRuggpfs;	
r; Welufqfs;	
Gf;fs;	

11. mFQRufFk; nj hoḡi yAi l a rṡy mḡfḡfs> mt wṡdhy; RufḡggLk; XNkhdḡfs> , t; XNkhdḡfsḡd; , yfF flḡi kgGfs; vdgḡ ḡḡd;tUk; mlḡti z aṡy; j uggl ;Lssd.

அக்டோகீதம் தொழிலுள்ள அங்கம்	ஆசை	இலக்கூ கீட்டகை
A: guhi j nuhapl ;	P: Gun[] uNuhd;	i. rṡWFly;
B: #y:tṡj j fk;	Q: guhj ;XNkhd;	ii. Ki yr; Ruggṡfs;
C: #yfk;	R: TRH	iii. rṡWefk;
D: ḡuṡt ffḡb;	S: <] u[ḡd;	iv: K wḡfḡ fḡrRuggṡ

NkwFwṡj j mlḡti z i a mbḡḡi lahff; nfhz ;L> RufFk; mḡfk; - XNkhd; - , yfF flḡi kgG (mḡfk) vdgṡwṡd; ruṡhd 10 Nruḡi ffi s> mej ej vOjJfi sAk; , yffḡfi sAk; ḡadḡLj j ḡf; FwṡḡḡLḡ.

1. 2. 3. 4. 5.
6. 7. 8. 9. 10.

12. kdḡḡḡdḡ; ntḡḡ rḡhfḡyḡḡḡNḡJ ei l ngWk; rṡy epḡoTfs; fNo j uggl ;Lssd.

ntḡḡk; ngWk; i kak; J}z ;lḡḡLkNḡJ ei l ngWk; epḡoTfi s "✓" vDk; mi lahsk; %yKk; ntḡḡk; ngWk; i kak; J}z ;lḡḡLkNḡJ **நடைமுறை** epḡoTfi s "x" mi lahsk; %yKk; FwṡḡḡLḡ.

tṡauḡ t r; Ruggṡfsḡḡ; nrwḡghL mj ṡfṡḡFk;	
mj ṡḡyḡḡ; nrwḡghL epNuhj ṡfḡḡLk;	
kokḡḡhd j i rehṡfsḡḡ; RUfḡfk;	
t d;\$l ;Lj ; j i rehṡfsḡḡ; RUfḡfk;	
F Nuh r] ; Fkṡḡfsḡḡ; Ki d J}z ;lḡḡy;	

13. ḡḡd;tUtdt wWs; rṡy 7 , Yk; Fi wej ṡH l f; nfhz ;Lssd. , j i d "✓" mi lahsk; %yKk; 7 , Yk; \$ba ṡH l f; nfhz ḡUḡḡḡ; "x" mi lahsk; %yKk; FwṡḡḡLḡ.

c kṡoet;	
cj urrhW	
Nahḡḡkl y;	
Rfḡṡḡḡl fg; ḡhak;	
F l wrhW	

14. Ez :Z apay; i fj nj hory;fs; ehd:F gupj hd El gqfi s mbggi la hff; nfhz :l d.

- i. Ez z qf;fs; , Wj p tpi snghUshFk;
- ii. Ez :Z apug; nghUs;fs; , Wj p tpi snghUshFk;
- iii. Ez :Z apur; nradKi wfs; , Wj p tpi snghUshFk;
- iv. , Wj p tpi snghUi sg; ngWtj wF ghukgupa khwwpai kgGr; nraaggl;l mqf;fs;

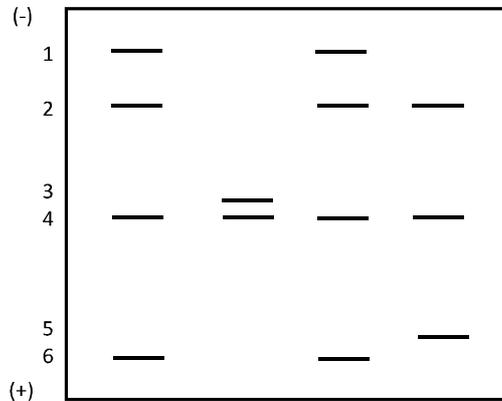
gpd;t Uk; Ez :Z apay; cwgj j p;fs;pd; cwgj j p;ay; nj hl uGgl;l nghUj j khd gupj hd El gj ;j j; nj upTnraJ> nghUj j khd \$l bDs; "✓" mi lahsj ;j , Lf.

பூண்டுமரிகளில் விளைபொருள்	i	ii	iii	iv
t pdhf;up				
ngdr;ypd;				
nrq;fz ;khup;F (Hepatitis) vj puhd eluggl;l dkhf;fy; fUt p				
nrkG gupj nj LgG				
c apu; - Grrpnfhyy;fs; (Bio - insecticides)				
, dRypd;				
c apuggupfhuk;				

15. j ei j fFupa epw%uj j k; L, M, n vd;Dk; vj pUuf;fi sf; nfhz ;LssJ. j ha;t op epw%uj j k; l, m, N vd;Dk; vj pUuf;fi sf; nfhz ;LssJ. j d;ahd FwFFg; gupkhwwj j pd; ngWNghwhfj; Nj hwWt p;f;f;\$baJ gpd;t Uk; epw%uj j qfS s; vJ? rupahd tpi li a "✓" mi lahsk; %yKk; gpi oahd tpi li a "x" mi lahsk; %yKk; FwpggpLf.

(i)	L, M, N	
(ii)	L, M, n	
(iii)	L, m, N	
(iv)	L, m, n	
(v)	l, m, n	

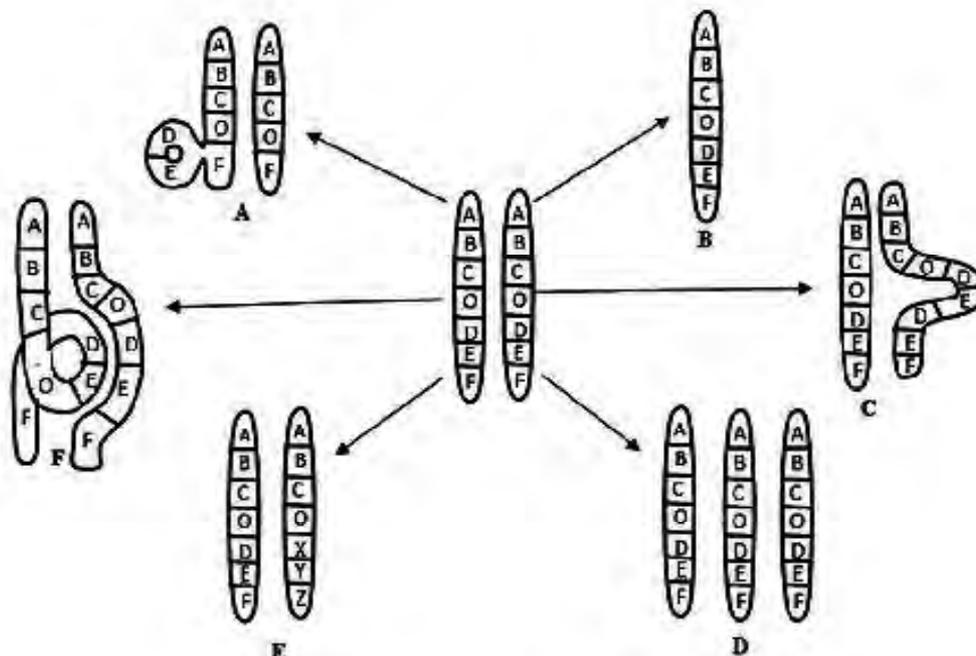
16. j ha; (M) mwıaggl;lK; j ei j A myyJ B Mz hfTk; , UfFk; gısi s C , d; j fggdhu; gwwıpa gız f;Fı d; , t;tıpdh nj hl uGgl;lJ. gynyhOf;F (multi-loci) DNA Mapi ag; (probe) gadgLj jı gısi s C> j ha; M> , U Mz ;fs; A, B MfıNahupı kılUe;J ngww FUjıııy; DNA tııy; mi l ahsk; (finger printing) epi wNtwwggl;lJ. NgW gıd;t UK; tııggı j jııy; fhı lı ggl;lSsJ.



gıd;t UK; epi yi kfs f;F xj j DNA gl bapd; vz i z j; nj upTıra;J cıpa nghUj j khd \$ı by; ruı mi l ahsj i j , Lf.

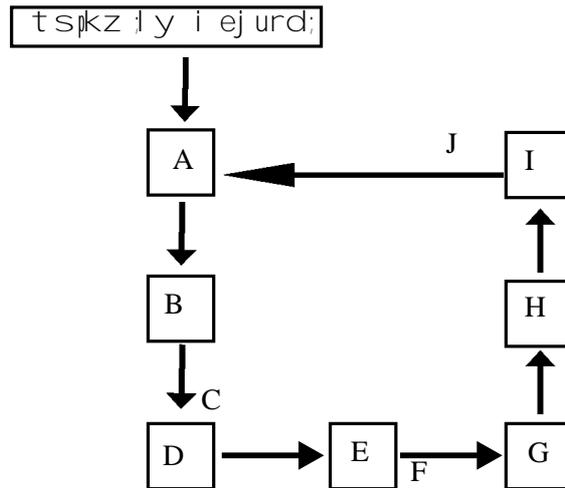
	1	2	3	4	5	6
DNA Gwt i uapd; (profile) kıfıf; Fwııpa gl b						
vyyh Mz ;fs f;Fk; nghJ thd gl b						
kdıj Uf;Fg; nghJ thd gl b						
vyyhg; ngz ;fs f;Fk; nghJ thd gl b						
capıay; j ei j f;Fk; gısi s f;Fk; nghJ thd gl b						

17. nttNtW ti fahd epwıuj j tııfhuqıfı sf; fNo j uggı;lSs tııggı k; fhı lı fıwJ. epwıuj j tııfhuqıfııpd; ti ffi sr; ruıahd vOj;J %yk; FwııggııLf.



1. Neukhwy;	
2. eF,fk;	
3. j dP%uj j K ss	
4. , ul bjj y;	
5. Kk%uj j K ss	
6. nfhz ;Lnryyy;	

18. i ejurd; t l i j j d; nk h j j t u g g l k; fNo j u g g l ;L s s J.



g p d ; t U k ; n r a d k i w f s ; / g j h u j j q f s ; x t n t h d i w A k ; F w p g g p L k ; N k w F w j j t u p g g l j j p Y s s r u p a h d v O j i j j ; n j u p T n r a J > n g h U j j k h d \$ I b D s ; v O J f .

mNkhdpaht hf,fk;	
i e j j pNuwwhf,fk;	
j ht ug; Guj qf s;	
i e j j pNuwWfs;	
kz z pYss Nrj d i e j u r d ;	
t p y q F g; Guj k;	
mkpNdh mkp y q f s;	
mNkhdpak; mad,f s;	
i e j j p i u w W f s;	
c l n r Y j j y;	

19. , yqi fajd; nghqFKf #ownwhFj pfs; nj hl ughd gy \$wWfs; fNo juggl;Lssd. rupahd \$wWfi s "✓" mi lahsk; %yKk; gpi oahd \$wWfi s "x" mi lahsk; %yKk; FwpggpLf.

ctujj di k fly; elpYk; ghuf;ff; Fi wthFk;	
Nghri z cssl f;fk; rKjj pjj j tpl caut hdj hFk;	
capug; gy;ti fi k rKjj pur; #ownwhFj p;f;Fk; eddl;	
#ownwhFj p;f;Fk; , i la py; , U;f;Fk;	
Kj yhd cwgj j g j p;wd; rKjj pur; #ownwhFj p;f;Fk; eddl; #ow;	
nwhFj p;f;Fk; , i la py; , U;f;Fk;	
fl Yl dhd nj hLi f rpy rkaqfspy; kz y; j i l fshy; %l g;	
gl bU;f;Fk;	

20. gpd;tUtd til;Lj; Nj hl i r; #ownwhFj p;ay; fhz ggLk; rpy mqf;f;fs; MFk;
 A: Nj i u B: nt l;L;f;f;sp C: rhi ug; ghkG D: Gy;
 E: fOF F: Kay; G: Xz hd;

fNo juggl;Lss , r#ownwhFj p;ajd; cz T ti ya py; nghUj j khd vOj i j g; gadgLj j p Nkw;Fwjj mqf;f;f;sp; rupahd epi yi af; FwpggpLf.

